5c
Wes

WEST COAST LUMBERMEN'S ASSOCIATION

GRADES
USES
SPECIFICATIONS

Douglas Fir
West Coast Hemlock
Western Red Cedar
Sitka Spruce
White Fir

West Coast lumber comes from the Pacific slopes of the great Northwest. More than 5 million acres of tax-paying forests are already certified as West Coast Tree Farms, pledged to a continuous program of growth, protection and scientific management of forest crops.

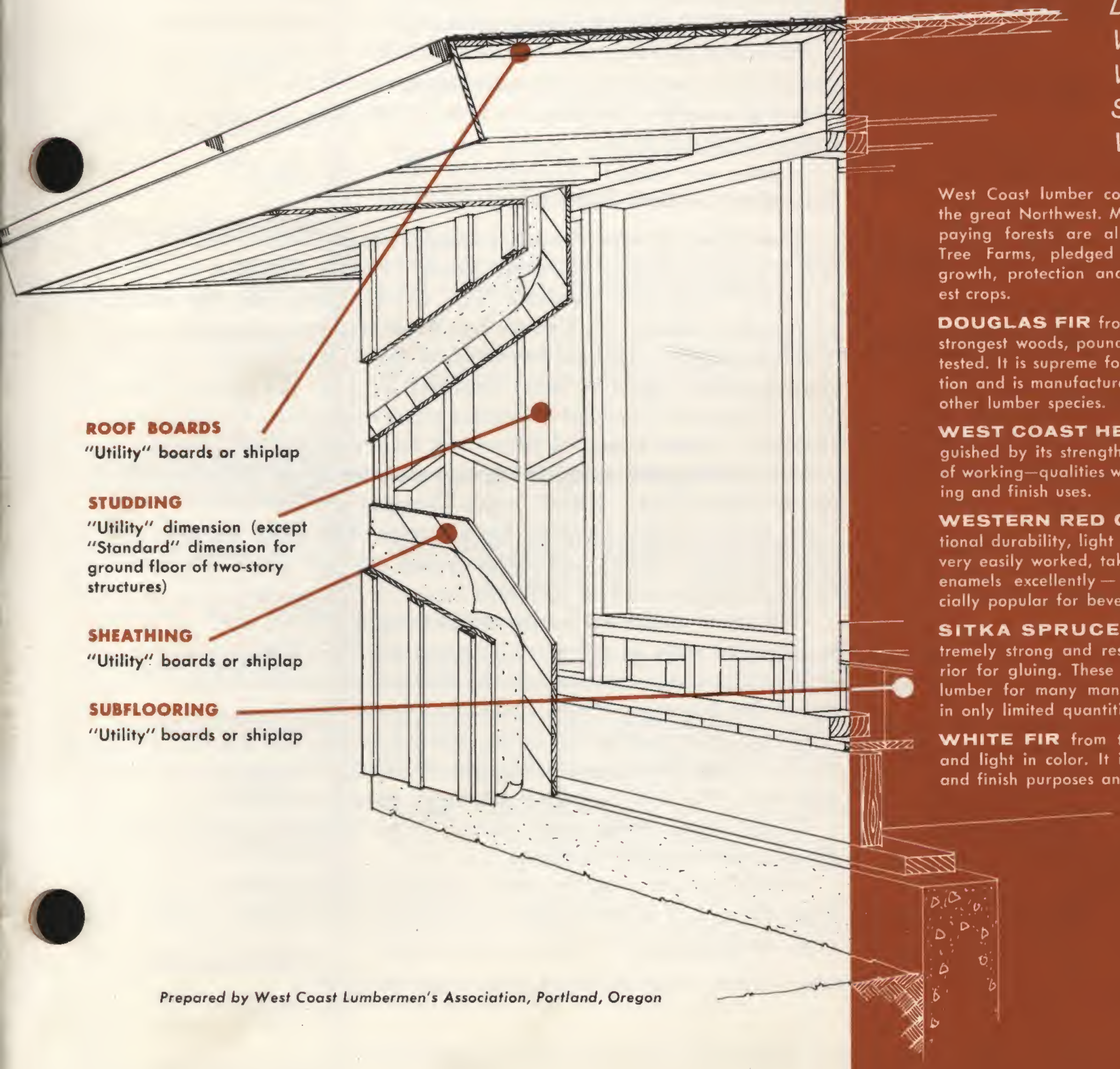
DOUGLAS FIR from the West Coast is one of the strongest woods, pound for pound, that has ever been tested. It is supreme for both heavy and light construction and is manufactured into more use items than any other lumber species.

WEST COAST HEMLOCK is particularly distinguished by its strength, freedom from pitch, and ease of working—qualities which make it ideal for both framing and finish uses.

WESTERN RED CEDAR is noted for its exceptional durability, light weight and beautiful color. It is very easily worked, takes and holds stains, paints and enamels excellently — qualities which make it especially popular for bevel siding and paneling.

SITKA SPRUCE is odorless and tasteless, extremely strong and resilient, easily worked and superior for gluing. These qualities make it the preferred lumber for many manufactured items. It is available in only limited quantities for construction purposes.

WHITE FIR from the West Coast is non resinous and light in color. It is used extensively for paneling and finish purposes and for light construction framing.



ROOF BOARDS
"Utility" boards or shiplap

STUDDING
"Utility" dimension (except "Standard" dimension for ground floor of two-story structures)

SHEATHING
"Utility" boards or shiplap

SUBFLOORING
"Utility" boards or shiplap

Prepared by West Coast Lumbermen's Association, Portland, Oregon

WEST COAST LUMBERMEN'S ASSOCIATION

Index:

Beams and Stringers 5

Bevel Siding

sizes and grades 7
grade illustrations 10-11

Boards

sizes and grades 4
grade illustrations 12

Ceiling

patterns 7

Drop Siding

patterns 7

Finish

sizes and grades 6
grade illustrations 8-9

Flooring

sizes and grades 6

Joists and Planks

sizes and grades 5
grade illustrations 14-15

Light Framing

sizes and grades 4
grade illustrations 13

Paneling

patterns 7

Posts and Timbers

sizes and grades 5

Roof Decking

grades and description 16
sizes and patterns 17
span information 17-18-19
Stress Grades 4-5
Where to Buy 19

HOW TO SPECIFY

The mere fact that a piece of lumber is beautifully clear and completely free of knots, shake, wane and other natural growth characteristics does not necessarily mean it is better than some other less perfect piece. It is possible that a knotty 2″x6″ will carry two or three times as much weight as a clear piece of the same size and species.

Much expense, delay and misunderstanding can be avoided on construction projects if the right grades of lumber are correctly specified by species, grade-name, nominal size and surfacing.

SAMPLE SPECIFICATIONS

General

"Unless otherwise noted all lumber shall conform to the sizes, patterns and grades in STANDARD GRADING AND DRESSING RULES NO. 15 of the West Coast Lumber Inspection Bureau. Each piece of lumber delivered to the job shall be properly grade stamped as specified in those rules. All paragraph references to lumber in these specifications refer to the above rules.

"All framing lumber delivered to the job shall be piled off the ground in a manner to assure drainage, ventilation and protection from the weather. Building must be thoroughly dry before finish lumber is placed in it."

Grades and Species

"Floor joists, headers, lintels, ceiling joists and rafters shall be surfaced 4 sides (S4S) 'Standard' grade (1200f) Douglas fir (Par. 123-c) or West Coast Hemlock (Par. 223-c) unless otherwise noted on the plans. However, 'Standard' & better will be accepted."

"Floor beams and roof beams shall be surfaced 4 sides (S4S), 'Construction' grade (1500f) Douglas fir (Par. 124-b) or West Coast Hemlock (Par. 224-b) unless otherwise noted on the plans. However, 'Construction' & better will be accepted."

"All studding, blocking, bridging, plates, fire-stops shall be surfaced 4 sides (S4S), 'Utility' grade Douglas fir (Par. 122-d), West Coast Hemlock (Par. 222-d), Sitka spruce (322-d) or Western red cedar (422-d) unless otherwise noted on the plans. However, 'Utility' & better will be accepted."

"Wherever noted on the plans, framing members shall be pressure treated with an approved preservative according to the standard specifications contained in the Manual of Recommended Practice of the American Wood Preservers Association."

"Trim, door frames and other exposed finish shall be kiln dried (K.D.) 'C and Better' grade Douglas fir (Par. 102-c) or West Coast Hemlock (Par. 202-c) unless otherwise noted on the plans."

"Cedar bevel siding shall be kiln dried (K.D.) 'A' grade (Par. 408-a) unless otherwise noted."

"West Coast Hemlock paneling shall be kiln dried (K.D.) 'C' V.G. grade (Par. 211 & 201-c) WC-174 U of O pattern unless otherwise noted on the plans."

(Above typical specifications are given as examples only.)

FINISH

WC LB ® B-B-VG

WC LB ® C-VG

WC LB ® D-VG

WC LB ® C&BTR

WC LB ® D

"B and Better" is the top grade of vertical grain Finish, used where finest appearance is important on walls, floors, trim and cabinet work. May be stained, enameled, painted or given a natural finish.

"C" vertical grain is suitable for fine finish work both exterior and interior, with stained, painted, enameled or natural finish. Often used in combination with "B and Better".

"D" vertical grain is used for trim, flooring and siding where excellent serviceability and good resistance to wear is desirable but appearance is not of primary importance.

"C and Better" is the top grade of flat grain Finish, suitable for fine quality siding, paneling, trim and cabinet work. Noted for its grain pattern, it is slightly less wear resistant than vertical grain.

"D" flat grain is used for flooring, siding and sheathing where appearance is not of primary importance, but where economy and good serviceability are required.

BOARDS

WC LB ® SEL-MER

WC LB ® CONST

WC LB ® STAND

WC LB ® UTIL

WC LB ® ECON

"Select Merchantable" boards are recommended for construction where appearance is important and for exposed interior and exterior use. Pieces are graded primarily for serviceability, but are usually of fine appearance.

"Construction" boards are used for subfloors, roof and wall sheathing, rough concrete forms and similar types of construction.

"Standard" boards are recommended and usually used in conjunction with "Construction" boards for subfloors, roof and wall sheathing, rough concrete work and similar purposes.

"Utility" boards are used for sheathing, subflooring, and other uses where appearance is not important but where strength, economy and good nail-holding qualities are desirable.

"Economy" boards are used for crating, bracing, dunnage and temporary construction. Short lengths of higher grade material may be obtained from this grade by cutting.

DIMENSION

WC LB ® SEL-STR

WC LB ® CONST

WC LB ® STAND

WC LB ® UTIL

WC LB ® ECON

"Select Structural" Dimension is recommended for the highest categories of construction, for engineered construction and for exposed interiors and exteriors where a combination of very high strength and finest appearance is demanded.

"Construction" Dimension ranks only slightly below "Select Structural" and is recommended for similar uses when appearance is less exacting.

"Standard" Dimension is recommended and usually used in conjunction with "Construction" Dimension where somewhat lower strength is suitable and appearance is not a primary consideration.

"Utility" Dimension is used for joists and rafters in limited spans, for studs and framing in light construction, and in other places where a combination of utility and economy is desirable.

"Economy" Dimension is used for crating, bracing, dunnage and temporary construction. Short lengths of higher grade material may be obtained from this grade by cutting.

Either mill number or name appears as part of stamp.

Construction

BOARDS

Grades

DOUGLAS FIR	WEST COAST HEMLOCK	WESTERN RED CEDAR	SITKA SPRUCE WHITE FIR
Select Merchantable	Select Merchantable	*Select Merchantable	Select Merchantable
Construction	Construction	Construction	Construction
*Standard	Standard	Standard	Standard
Utility	*Utility	Utility	Utility
Economy	Economy	Economy	Economy

*Photographs of these grades appear on Page 12.

Sizes

Boards are usually most readily available and economical in widths of 4″ to 8″ and in random lengths of 6′ to 16′.

	NOMINAL	ACTUAL	CONVERSION TABLE
SURFACED 4 SIDES (S4S)	1 x 2	¾ x 1⅝	1,231 FBM per 1,000 sq. ft.
	1 x 3	¾ x 2⅝	1,143 FBM per 1,000 sq. ft.
	1 x 4	¾ x 3⅝	1,104 FBM per 1,000 sq. ft.
	1 x 6	¾ x 5½	1,091 FBM per 1,000 sq. ft.
	1 x 8	¾ x 7½	1,067 FBM per 1,000 sq. ft.
	1 x 10	¾ x 9½	1,053 FBM per 1,000 sq. ft.
	1 x 12	¾ x 11½	1,044 FBM per 1,000 sq. ft.
SHIPLAP (S/L)	1 x 6	¾ x 5⅛ face	1,171 FBM per 1,000 sq. ft.
	1 x 8	¾ x 7⅛ face	1,123 FBM per 1,000 sq. ft.
	1 x 10	¾ x 9⅛ face	1,096 FBM per 1,000 sq. ft.
CENTER MATCHED (CM)	1 x 6	¾ x 5¼* face	1,143 FBM per 1,000 sq. ft.
	1 x 8	¾ x 7¼† face	1,103 FBM per 1,000 sq. ft.

*5³⁄₁₆″ seasoned.
†7″ seasoned.

(Figures do not allow for waste in cutting)

LIGHT FRAMING

Grades

DOUGLAS FIR	WEST COAST HEMLOCK	WESTERN RED CEDAR	SITKA SPRUCE WHITE FIR
Dense Select Structural†[1]	1500f Industrial†[2]	Select Merchantable	Select Merchantable
1750f Industrial†[2]	1200f Industrial†[2]	Construction	Construction
1500f Industrial†[2]	Select Structural†[1]	Standard	Standard
1200f Industrial†[2]	Construction	Utility	Utility
*Select Structural†[1]	*Standard	Economy	Economy
Construction	Utility		
Standard	Economy		
Utility			
Economy			

*Photographs of these grades appear on page 13.
†These grades are stress graded. See bottom of Pages 4 and 5.
1. Not available in widths under 4″.
2. Not available in 2″ x 2″.

Sizes

Light Framing is usually most readily available and economical in random lengths of 6′ to 16′ or 6′ to 20.′

	NOMINAL	ACTUAL (S4S)	CONVERSION TABLE
SURFACED 4 SIDES (S4S)	2 x 2	1⅝ x 1⅝	3,000 lineal ft. per 1,000 FBM
	2 x 3	1⅝ x 2⅝	2,000 lineal ft. per 1,000 FBM
	2 x 4	1⅝ x 3⅝	1,500 lineal ft. per 1,000 FBM
	3 x 3	2⅝ x 2⅝	1,333 lineal ft. per 1,000 FBM
	3 x 4	2⅝ x 3⅝	1,000 lineal ft. per 1,000 FBM
	4 x 4	3⅝ x 3⅝	750 lineal ft. per 1,000 FBM

(Figures do not allow for waste in cutting)

STRESS GRADES

Stress grades are designed to meet exacting structural requirements and to provide the designer with assured strength values. Except for heavy wall and roof plank no stress grades have been established for Sitka spruce, Western red cedar or White fir. For the stress grades of Douglas fir and West Coast Hemlock, values have been assigned for extreme fiber bending "f" and tension parallel to grain "t", horizontal shear "H", compression perpendicular to grain "c$\perp$" and compression parallel to grain "c". Species, rather than grades, determine modulus of elasticity. Values have been assigned as follows: Douglas fir "E" = 1,760,000; West Coast Hemlock "E" = 1,540,000; Western red cedar "E" = 1,100,000; Sitka spruce "E" = 1,320,000. More complete information on all these values is contained in the Standard Grading and Dressing Rules.

JOISTS AND PLANKS

Grades

DOUGLAS FIR	WEST COAST HEMLOCK	WESTERN RED CEDAR	SITKA SPRUCE WHITE FIR
Dense Select Structural†	Select Structural†	Select Merchantable	Select Merchantable
*Select Structural†	*Construction†	Construction	Construction
Dense Construction†	Standard†	Standard	Standard
Construction†	*Utility	Utility	Utility
*Standard†	Economy	Economy	Economy
*Utility			
Economy			

*Photographs of these grades appear on Pages 14 and 15.
†These grades are stress graded. See bottom of Pages 4 and 5.

Sizes

Joists and Planks are usually most readily available and economical in random lengths of 6′ to 16′ or 6′ to 20′.

	NOMINAL	ACTUAL	CONVERSION TABLE
SURFACED 4 SIDES (S4S)	2 x 6	1⅝ x 5½	1,000 lineal ft. per 1,000 FBM
	2 x 8	1⅝ x 7½	750 lineal ft. per 1,000 FBM
	2 x 10	1⅝ x 9½	600 lineal ft. per 1,000 FBM
	2 x 12	1⅝ x 11½	500 lineal ft. per 1,000 FBM
	3 x 6	2⅝ x 5½	667 lineal ft. per 1,000 FBM
	3 x 8	2⅝ x 7½	500 lineal ft. per 1,000 FBM
	3 x 10	2⅝ x 9½	400 lineal ft. per 1,000 FBM
	3 x 12	2⅝ x 11½	333 lineal ft. per 1,000 FBM
	4 x 6	3⅝ x 5½	500 lineal ft. per 1,000 FBM
	4 x 8	3⅝ x 7½	375 lineal ft. per 1,000 FBM
	4 x 10	3⅝ x 9½	300 lineal ft. per 1,000 FBM
	4 x 12	3⅝ x 11½	250 lineal ft. per 1,000 FBM
CENTER MATCHED (CM)	2 x 6	1⅝ x 5 face	2,400 FBM per 1,000 sq. ft.
	3 x 6	2⅝ x 5 face	3,600 FBM per 1,000 sq. ft.
	3 x 8	2⅝ x 7 face	3,429 FBM per 1,000 sq. ft.

(Figures do not allow for waste in cutting)

BEAMS AND STRINGERS

Grades

DOUGLAS FIR	WEST COAST HEMLOCK	WESTERN RED CEDAR	SITKA SPRUCE WHITE FIR
Select Structural†	Construction†	....	Select Merchantable
Construction†	Standard	....	Construction
Standard	Utility	....	Standard
Utility	....	....	Utility

†These grades are stress graded. See bottom of Pages 4 and 5.

Sizes

Rough or surfaced 5″ and thicker, rectangular, width more than 2″ greater than thickness.

POSTS AND TIMBERS

Grades

DOUGLAS FIR	WEST COAST HEMLOCK	WESTERN RED CEDAR	SITKA SPRUCE WHITE FIR
Select Structural†	Construction†	Select Merchantable	Select Merchantable
Construction†	Standard	Construction	Construction
Standard	Utility	Standard	Standard
Utility	....	Utility	Utility

†These grades are stress graded. See bottom of Pages 4 and 5.

Sizes

Rough or surfaced 5″ x 5″ and larger, width not more than 2″ greater than thickness in case of Douglas fir, West Coast Hemlock and Sitka spruce. Western red cedar timbers are 5″ x 5″ and larger.

DOUGLAS FIR STRESS GRADES

Light Framing	Joists and Planks	Beams and Stringers	Posts and Timbers
Dense Select Structural (2050f)	Dense Select Structural (2050f)	Dense Select Structural (2050f)	Dense Select Structural (1650c)
Select Structural (1900f)	Select Structural (1900f)	Select Structural (1900f)	Select Structural (1500c)
1750f Industrial* 1500f Industrial*	Dense Construction (1750f)	Dense Contsruction (1750f)	Dense Construction (1400c)
1200f Industrial*	Construction (1500f) Standard (1200f)	Construction (1500f)	Construction (1200c)

WEST COAST HEMLOCK STRESS GRADES

Light Framing	Joists and Planks
Select Structural (1600f)	Select Structural (1600f)
1500f Industrial*	Construction (1500f)
1200f Industrial*	Standard (1200f)

Beams and Stringers	Posts and Timbers
Construction (1500f)	Construction (1100c)

*These grades are specially selected for strength. They are not customarily available as stock lumber items.

FINISH

Grades

	DOUGLAS FIR	WEST COAST HEMLOCK	WESTERN RED CEDAR	SITKA SPRUCE WHITE FIR
Vertical Grain	*"B and Better"—V.G.	"B and Better"—V.G.	....	....
	"C"—V.G.	"C"—V.G.	....	....
	"D"—V.G.	*"D"—V.G.	....	....
Flat Grain or Mixed Grain	"C and Better"	*"C and Better"	"B and Better"	"B and Better"
	*"D"	"D"	*"C"	"C"
			"D"	"D"

In Western red cedar, Sitka spruce and White fir, if flat grain (F.G.) or vertical grain (V.G.) only is desired, it must be specified. Otherwise mixed grain (M.G.) may be shipped at shipper's option.

*Photographs of these grades appear on Pages 8 and 9.

Sizes

Although obtainable in widths up to 12", finish is usually most readily available and economical in widths of 8" or less and in random lengths from 3' to 16'.

NOMINAL	ACTUAL (S4S)	CONVERSION TABLE
1 x 2	¾ x 1⅝	6,000 lineal ft. per 1,000 FBM
1 x 3	¾ x 2⅝	4,000 lineal ft. per 1,000 FBM
1 x 4	¾ x 3½	3,000 lineal ft. per 1,000 FBM
1 x 5	¾ x 4½	2,400 lineal ft. per 1,000 FBM
1 x 6	¾ x 5½	2,000 lineal ft. per 1,000 FBM
1 x 8	¾ x 7¼	1,500 lineal ft. per 1,000 FBM
1 x 10	¾ x 9¼	1,200 lineal ft. per 1,000 FBM
1 x 12	¾ x 11¼	1,000 lineal ft. per 1,000 FBM
1¼ x 2	1 1/16 x 1⅝	4,800 lineal ft. per 1,000 FBM
1¼ x 3	1 1/16 x 2⅝	3,200 lineal ft. per 1,000 FBM
1¼ x 4	1 1/16 x 3½	2,400 lineal ft. per 1,000 FBM
1¼ x 5	1 1/16 x 4½	1,920 lineal ft. per 1,000 FBM
1¼ x 6	1 1/16 x 5½	1,600 lineal ft. per 1,000 FBM
1¼ x 8	1 1/16 x 7¼	1,200 lineal ft. per 1,000 FBM
1¼ x 10	1 1/16 x 9¼	960 lineal ft. per 1,000 FBM
1¼ x 12	1 1/16 x 11¼	800 lineal ft. per 1,000 FBM
2 x 2	1⅝ x 1⅝	3,000 lineal ft. per 1,000 FBM
2 x 3	1⅝ x 2⅝	2,000 lineal ft. per 1,000 FBM
2 x 4	1⅝ x 3½	1,500 lineal ft. per 1,000 FBM
2 x 5	1⅝ x 4½	1,200 lineal ft. per 1,000 FBM
2 x 6	1⅝ x 5½	1,000 lineal ft. per 1,000 FBM
2 x 8	1⅝ x 7¼	750 lineal ft. per 1,000 FBM
2 x 10	1⅝ x 9¼	600 lineal ft. per 1,000 FBM
2 x 12	1⅝ x 11¼	500 lineal ft. per 1,000 FBM

(Figures do not allow for waste in cutting)

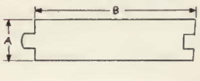
FLOORING

Grades

	DOUGLAS FIR	WEST COAST HEMLOCK	WESTERN RED CEDAR	SITKA SPRUCE WHITE FIR
Vertical Grain	"B and Better"—V.G.	"B and Better"—V.G.	....	"B and Better"—V.G.
	"C"—V.G.	"C"—V.G.	....	"C"—V.G.
	"D"—V.G.	"D"—V.G.	....	"D"—V.G.
Flat Grain or Mixed Grain	"C and Better"	"C and Better"	"C and Better"	"C and Better"
	"D"	"D"	"D"	"D"
	"E"	"E"	"E"	"E"

Sizes

Flooring is usually bundled at the mill for shipment and sale. Lengths of pieces range from 3' to 16' or longer.



NOMINAL	ACTUAL	CONVERSION TABLE
	A B	
1 x 3	25/32 x 2⅜	1,263 FBM per 1,000 square feet
1 x 4	25/32 x 3¼	1,231 FBM per 1,000 square feet
1 x 6	25/32 x 5 3/16	1,157 FBM per 1,000 square feet
1¼ x 3	1 1/16 x 2⅜	1,579 FBM per 1,000 square feet
1¼ x 4	1 1/16 x 3¼	1,538 FBM per 1,000 square feet

(Figures do not allow for waste in cutting)

BEVEL SIDING

Grades

		WESTERN RED CEDAR	SITKA SPRUCE WHITE FIR	DOUGLAS FIR	WEST COAST HEMLOCK
Vertical Grain		*"Clear"	"A"	"B and Better"—V.G.	"B and Better"—V.G.
		....	....	"C"—V.G.	"C"—V.G.
		....	....	"D"—V.G.	"D"—V.G.
Flat Grain or Mixed Grain		*"A"	"B"	....	"B and Better"
		"B"	"C"	....	"C"
		*"Rustic"	....	....	"D"
		"C"	....	....	....

*Photographs of these grades appear on Pages 10 and 11.

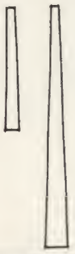
Sizes - Western Red Cedar

NOMINAL	ACTUAL			CONVERSION TABLE
	Top	Bottom	Width	
½ x 4	3/16	15/32	3½	1,600 FBM per 1,000 Square feet (1" lap)
½ x 5	3/16	15/32	4½	1,429 FBM per 1,000 Square feet (1" lap)
½ x 6	3/16	15/32	5½	1,333 FBM per 1,000 Square feet (1" lap)
½ x 8	3/16	15/32	7½	1,280 FBM per 1,000 Square feet (1¼" lap)
⅝ x 8	3/16	9/16	7½	1,280 FBM per 1,000 Square feet (1¼" lap)
⅝ x 10	3/16	9/16	9½	1,212 FBM per 1,000 Square feet (1¼" lap)
¾ x 8	3/16	¾	7½	1,280 FBM per 1,000 Square feet (1¼" lap)
¾ x 10	3/16	¾	9½	1,212 FBM per 1,000 Square feet (1¼" lap)
¾ x 12	3/16	¾	11½	1,171 FBM per 1,000 Square feet (1¼" lap)

(Figures do not allow for waste in cutting)

Rabbeted Bevel Siding is a special item which is popular in some areas. It is customarily manufactured in ¾" by 6", 8" and 10" widths, and is suitable for application directly over studs. Depth of the rabbet conforms to thickness of thin edge, and width of rabbet is ½".

Sizes - Douglas Fir - West Coast Hemlock - Sitka Spruce



NOMINAL	ACTUAL			CONVERSION TABLE
	Top	Bottom	Width	
½ x 4	3/16	15/32	3½	1,600 FBM per 1,000 Square feet (1" lap)
½ x 6	3/16	15/32	5½	1,333 FBM per 1,000 Square feet (1" lap)
½ x 8	3/16	15/32	7¼	1,333 FBM per 1,000 Square feet (1¼" lap)
¾ x 8	3/16	¾	7¼	1,333 FBM per 1,000 Square feet (1¼" lap)
¾ x 10	3/16	¾	9¼	1,250 FBM per 1,000 Square feet (1¼" lap)
¾ x 12	3/16	¾	11¼	1,200 FBM per 1,000 Square feet (1¼" lap)

(Figures do not allow for waste in cutting)

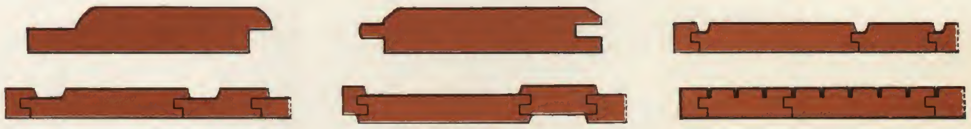
DROP SIDING
CEILING
PANELING

Grades

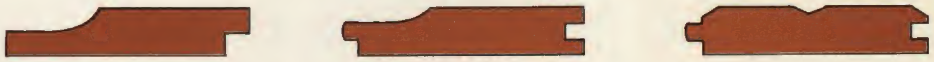
grades are similar in appearance to the "Finish" grades listed on the opposite page.

Patterns

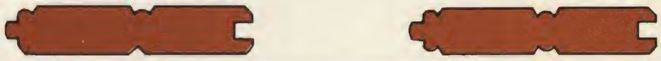
PANELING



SIDING



CEILING



Finish

VERTICAL GRAIN FINISH GRADES

Finish is customarily shipped kiln dried (KD) and surfaced 4 sides (S4S). Finish 1″ or less in thickness is usually dried as closely as practicable to an average moisture content of 10% or less. 1¼″, 1½″ and 2″ Finish is usually dried as closely as practicable to an average moisture content of 12% or less.

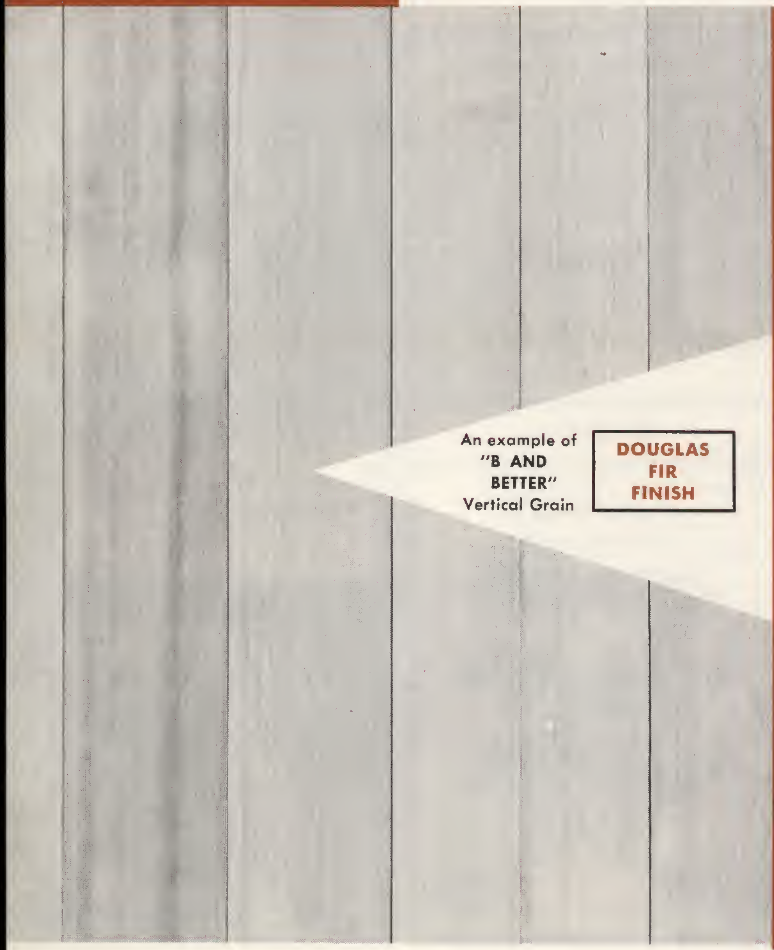
In vertical grain lumber the grain on the face of a piece appears as alternate strips of light springwood and darker summerwood, providing a good wearing surface and a pleasant appearance. Cupping due to change in moisture content is minimized.

Douglas Fir	"B and Better", "C", "D"
West Coast Hemlock	"B and Better", "C", "D"
Western Red Cedar	There are no separate vertical grain grades in these species. If vertical grain or flat grain only is desired, it must be so specified. Otherwise mixed grain (M.G.), may be shipped at shipper's option.
Sitka Spruce	
White Fir	

FLAT GRAIN OR MIXED GRAIN FINISH GRADES

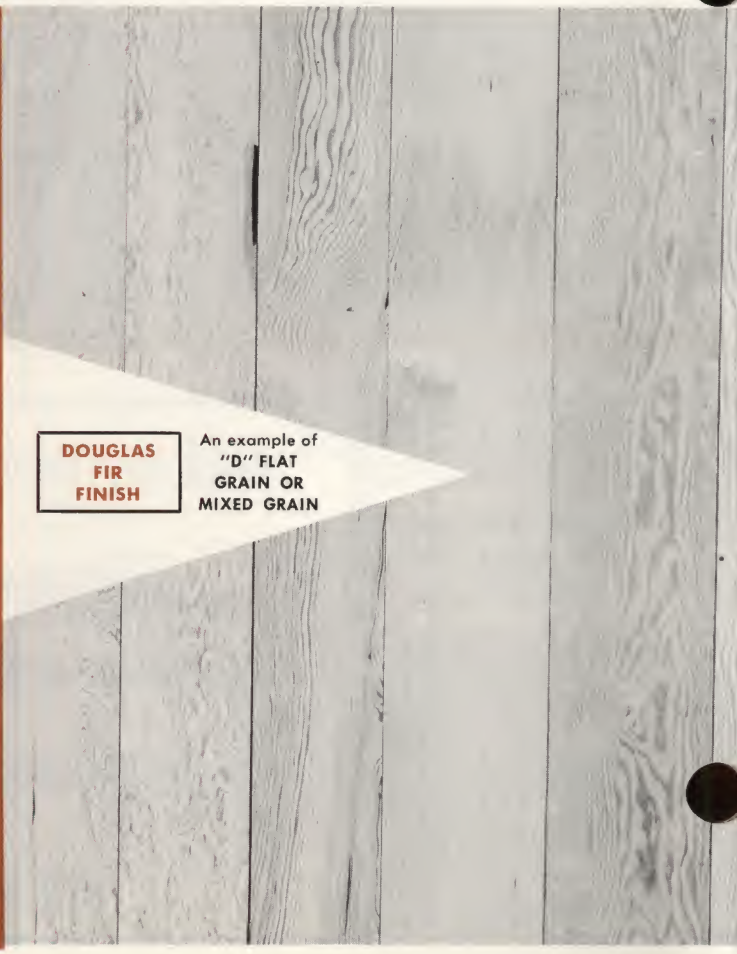
In flat grain lumber the annual growth rings viewed from the end of the piece are parallel with the wide face or form an angle up to 30 or 45 degrees to the wide face. This results in an interesting and varied pattern of grain on the exposed face.

Douglas Fir	"C and Better", "D"
West Coast Hemlock	"C and Better", "D"
Western Red Cedar	"B and Better", "C", "D"
Sitka Spruce	"B and Better", "C", "D"
White Fir	"B and Better", "C", "D"



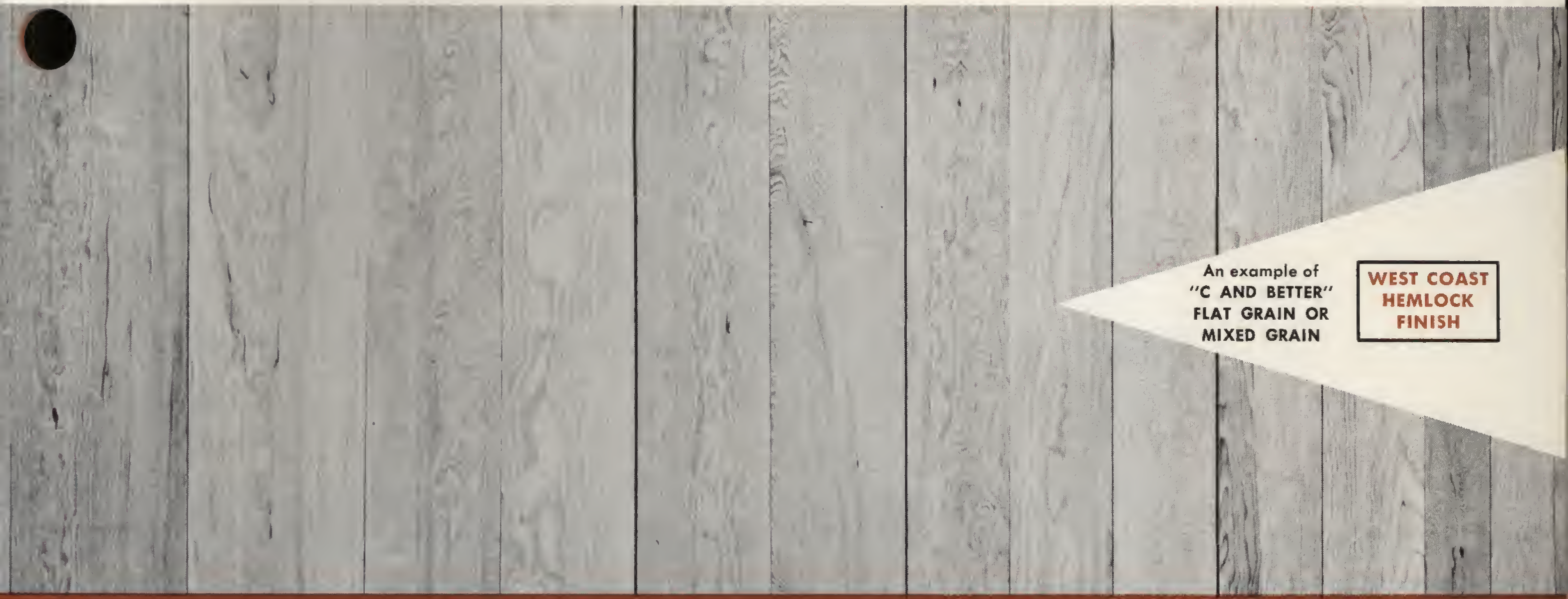
An example of "B AND BETTER" Vertical Grain

DOUGLAS FIR FINISH



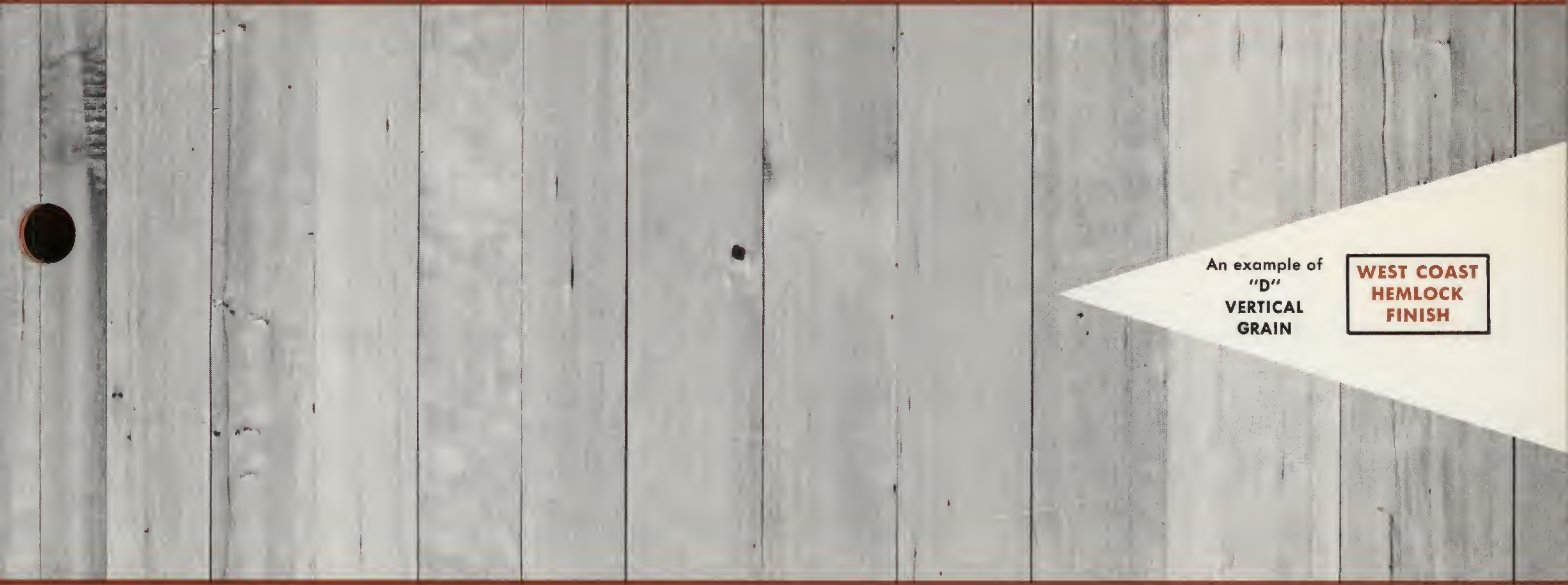
DOUGLAS FIR FINISH

An example of "D" FLAT GRAIN OR MIXED GRAIN



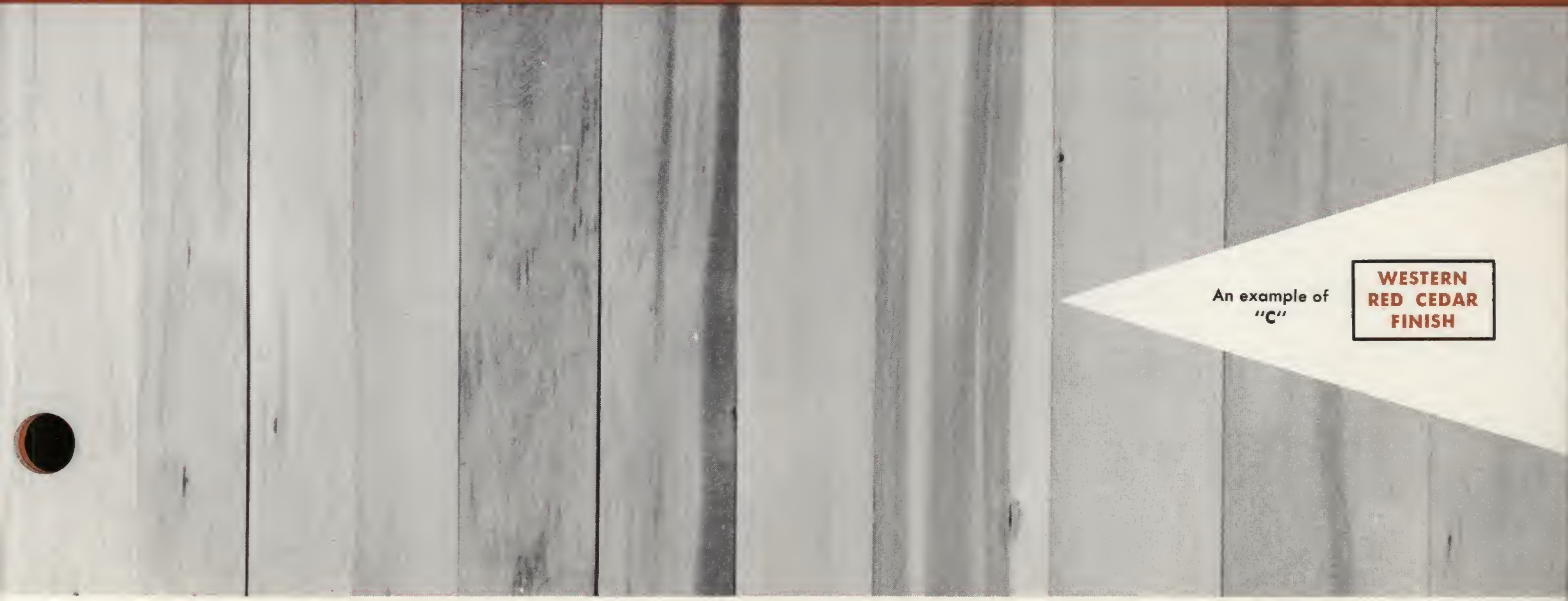
An example of "C AND BETTER" FLAT GRAIN OR MIXED GRAIN

WEST COAST HEMLOCK FINISH



An example of "D" VERTICAL GRAIN

WEST COAST HEMLOCK FINISH



An example of "C"

WESTERN RED CEDAR FINISH

Bevel Siding

BEVEL SIDING

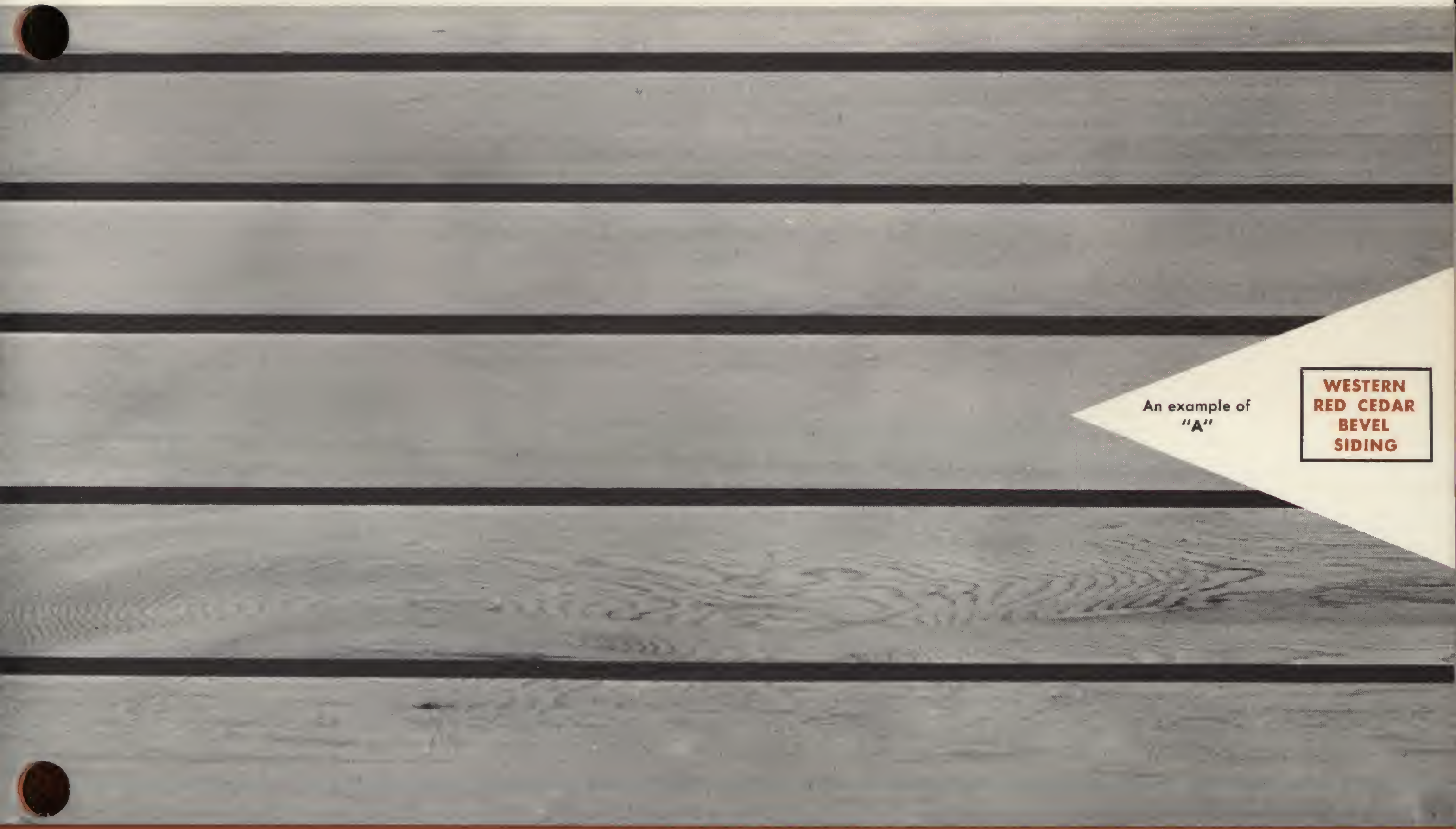
Grades

Bevel Siding is lumber which has been surfaced four sides and then resawn on a bevel to produce two pieces thicker on one edge than the other. It is customarily shipped kiln dried (KD).

Western Red Cedar	"Clear", "A", "B", "Rustic", "C"
West Coast Hemlock	"B and Better"—V.G., "C"—V.G., "D"—V.G., "B and Better", "C", "D"
Douglas Fir	"B and Better"—V.G., "C"—V.G., "D"—V.G.
Sitka Spruce	"A", "B", "C"
White Fir	"A", "B", "C"

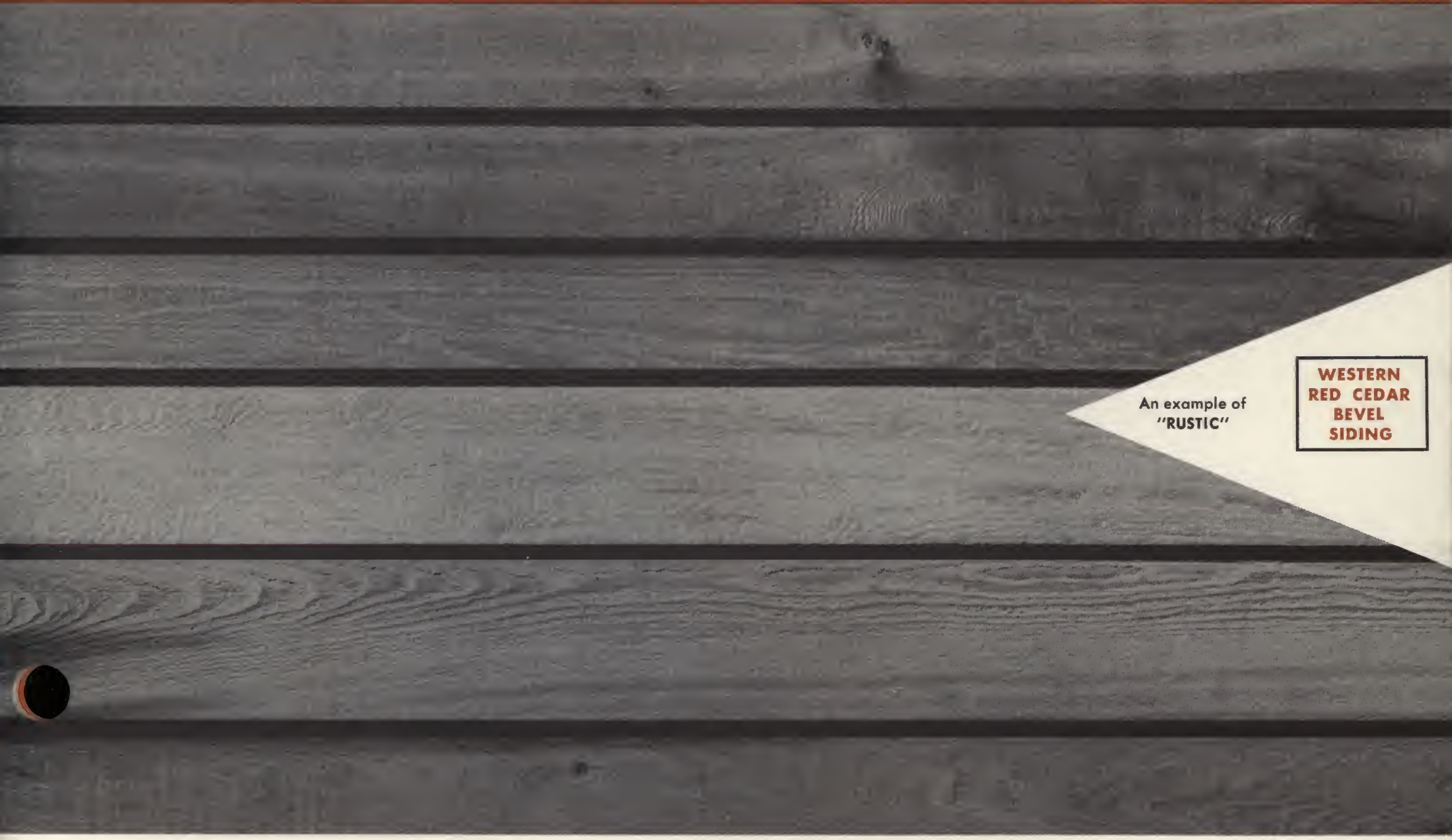
WESTERN RED CEDAR BEVEL SIDING

An example of "CLEAR"



An example of "A"

WESTERN RED CEDAR BEVEL SIDING



An example of "RUSTIC"

WESTERN RED CEDAR BEVEL SIDING

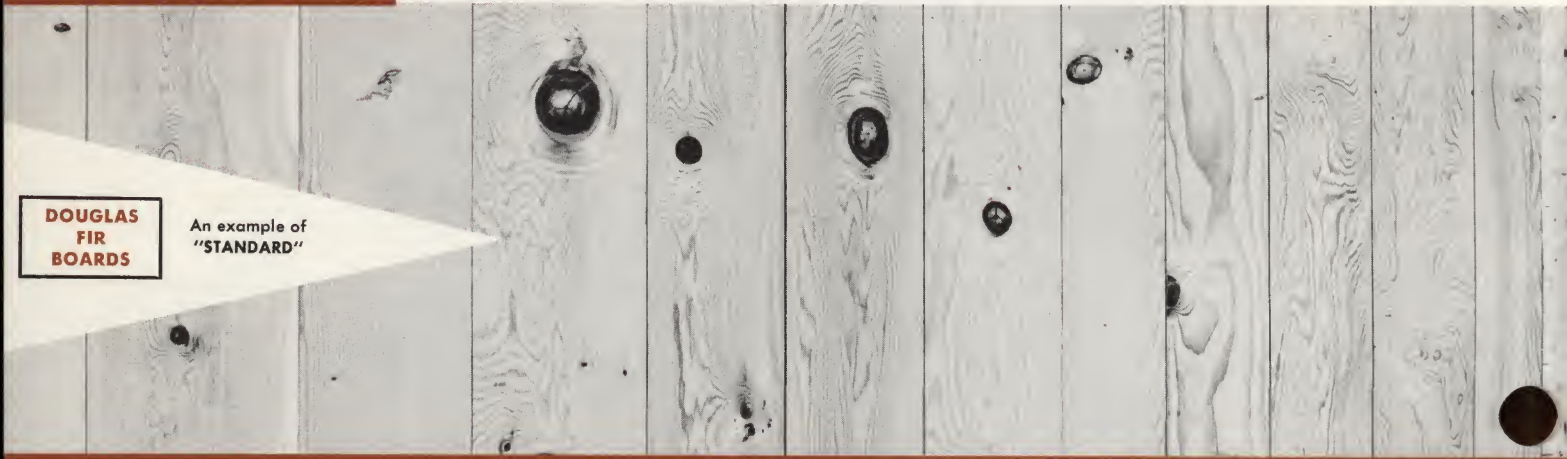
Boards

BOARDS

Rough or Surfaced, Shiplap or tongue and groove. Boards are usually of 1″ nominal thickness surfaced to ¾″. See Page 4 for standard sizes and other information pertaining to Boards.

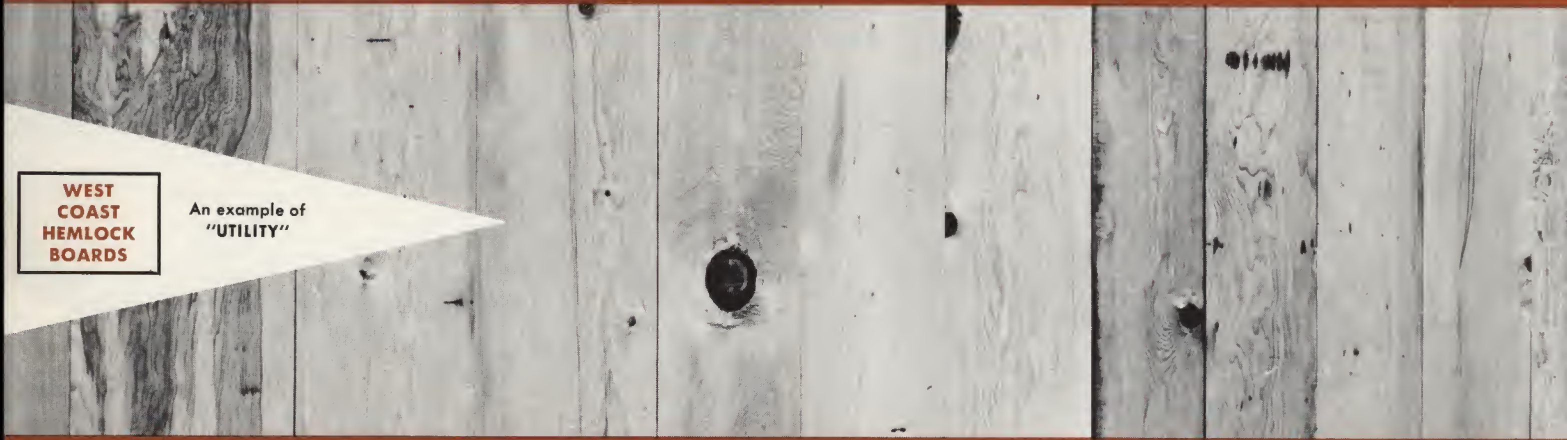
Grades

DOUGLAS FIR	WEST COAST HEMLOCK	WESTERN RED CEDAR	SITKA SPRUCE WHITE FIR
Select Merchantable	Select Merchantable	Select Merchantable	Select Merchantable
Construction	Construction	Construction	Construction
Standard	Standard	Standard	Standard
Utility	Utility	Utility	Utility
Economy	Economy	Economy	Economy



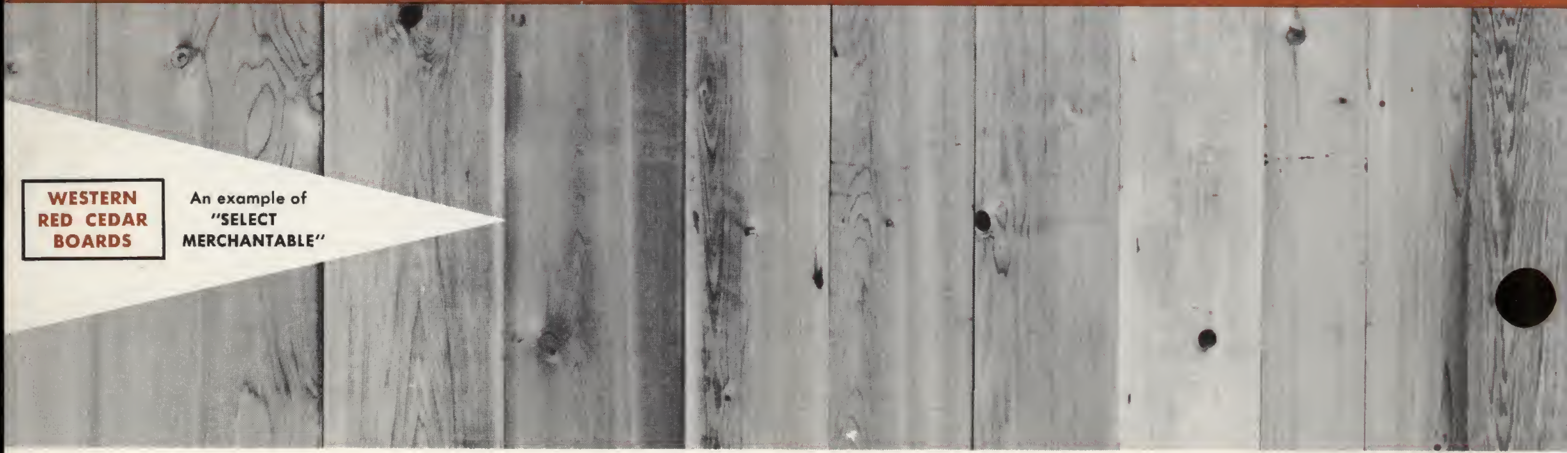
DOUGLAS FIR BOARDS

An example of "STANDARD"



WEST COAST HEMLOCK BOARDS

An example of "UTILITY"



WESTERN RED CEDAR BOARDS

An example of "SELECT MERCHANTABLE"

Light Framing

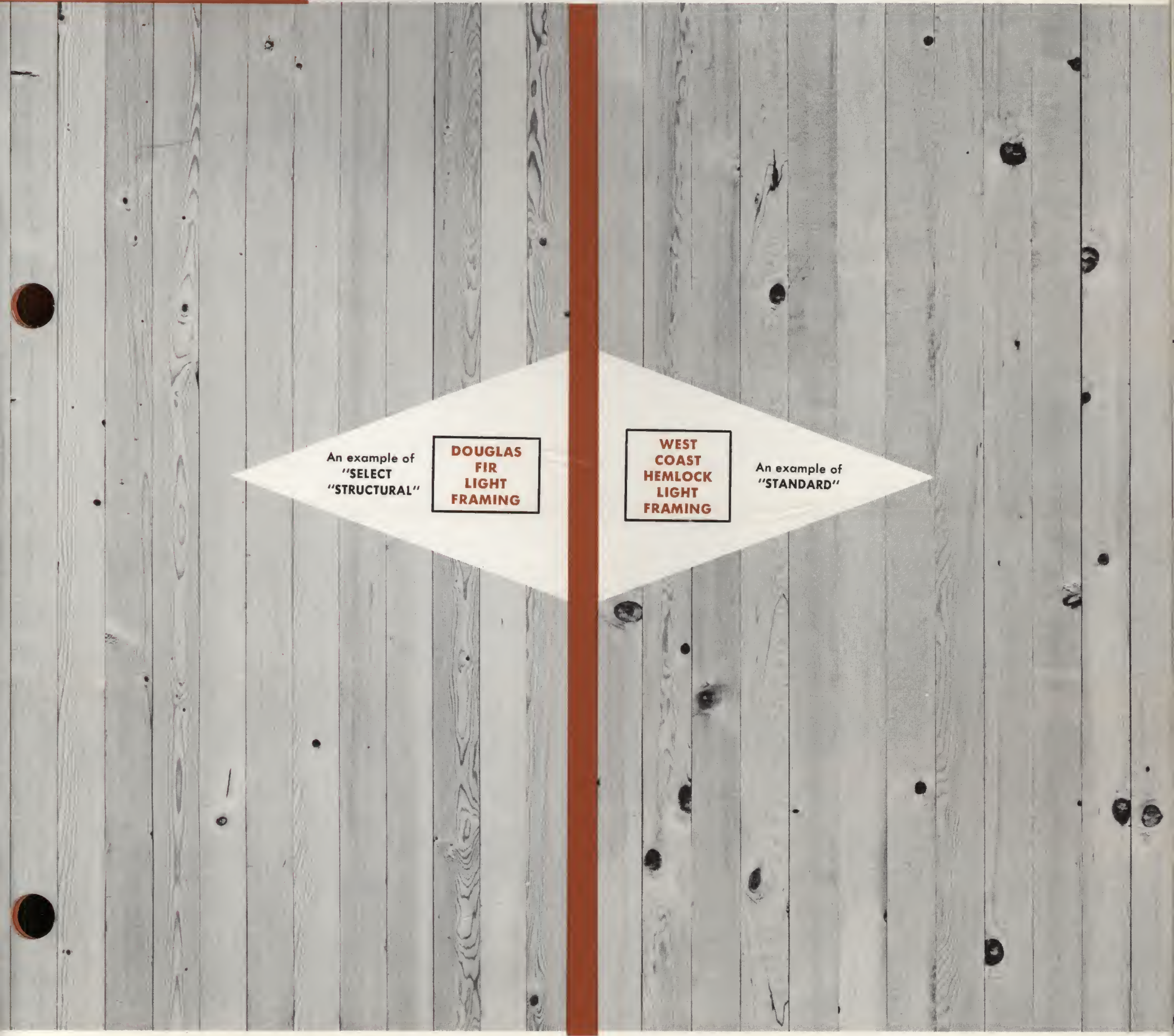
LIGHT FRAMING

Rough or surfaced 2″ to 4″ thick, not over 4″ wide. See Page 4 for standard sizes and other information pertaining to Light Framing.

Grades

DOUGLAS FIR	WEST COAST HEMLOCK	WESTERN RED CEDAR	SITKA SPRUCE WHITE FIR
Dense Select Structural†	Select Structural†	Select Merchantable	Select Merchantable
Select Structural†	Construction	Construction	Construction
Construction	Standard	Standard	Standard
Standard	Utility	Utility	Utility
Utility	Economy	Economy	Economy
Economy	1500f Industrial†	....	....
1750f Industrial†	1200f Industrial†	....	....
1500f Industrial†	....	....	....
1200f Industrial†	....	....	....

†These grades are stress graded.



An example of "SELECT "STRUCTURAL"

DOUGLAS FIR LIGHT FRAMING

WEST COAST HEMLOCK LIGHT FRAMING

An example of "STANDARD"

Joists and Planks

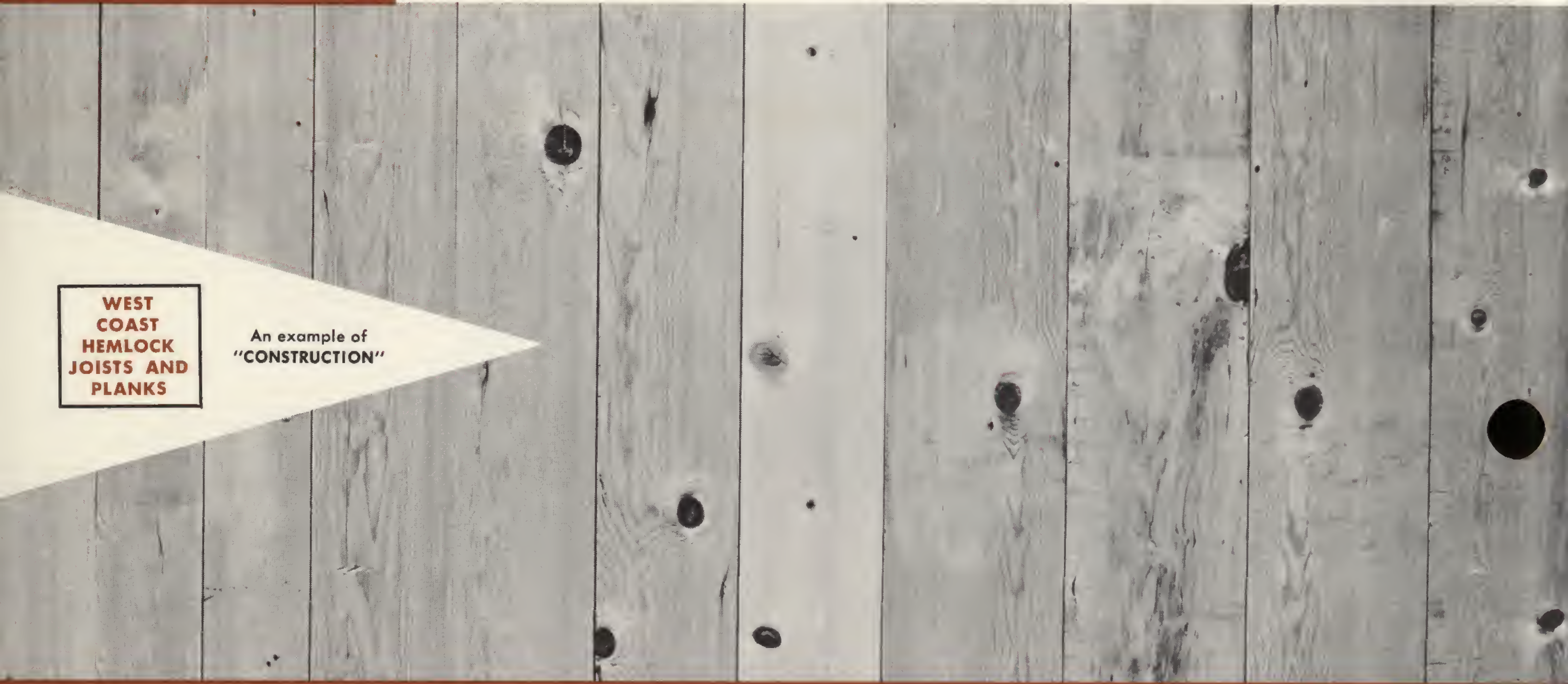
JOISTS AND PLANKS

Rough or Surfaced 2″ to 4″ thick, 6″ and wider. See Page 5 for standard sizes and other information pertaining to Joists and Planks.

Grades

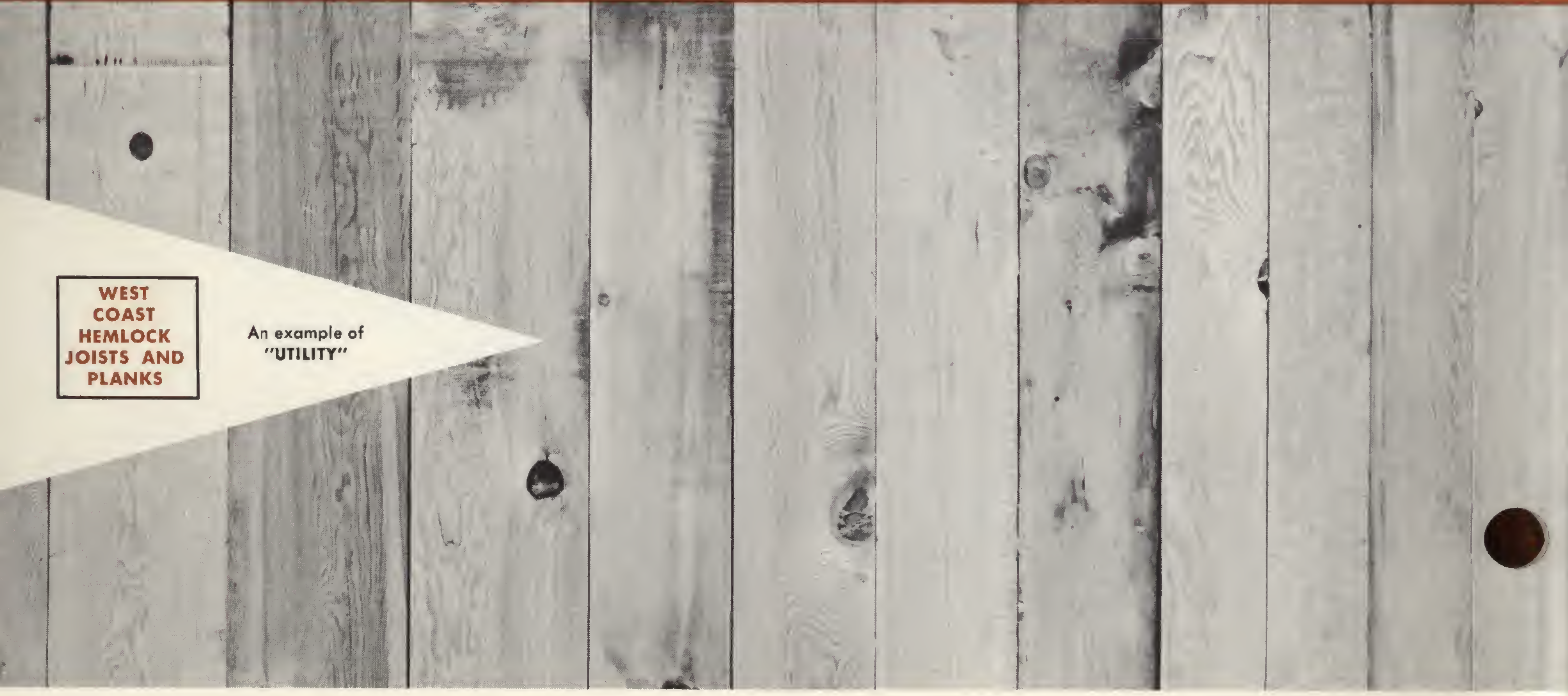
DOUGLAS FIR	WEST COAST HEMLOCK	WESTERN RED CEDAR	SITKA SPRUCE WHITE FIR
Dense Select Structural†	Select Structural†	Select Merchantable	Select Merchantable
Select Structural†	Construction†	Construction	Construction
Dense Construction†	Standard†	Standard	Standard
Construction†	Utility	Utility	Utility
Standard†	Economy	Economy	Economy
Utility	....	....	....
Economy	....	....	....

†These grades are stress graded.



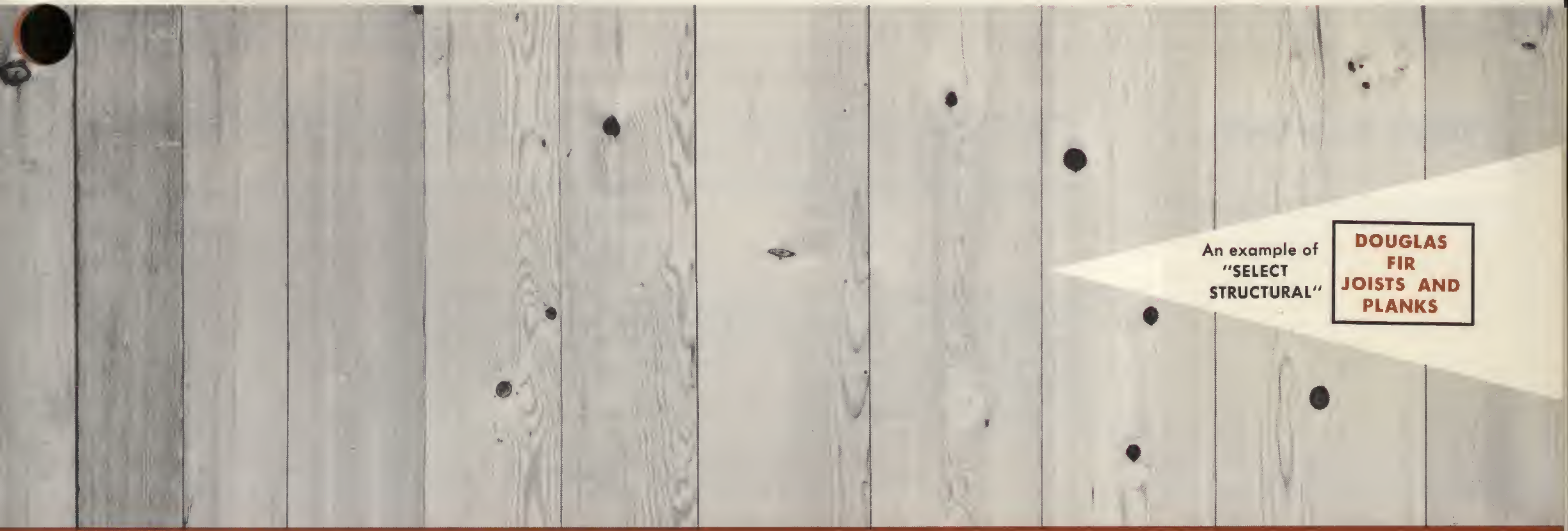
WEST COAST HEMLOCK JOISTS AND PLANKS

An example of "CONSTRUCTION"



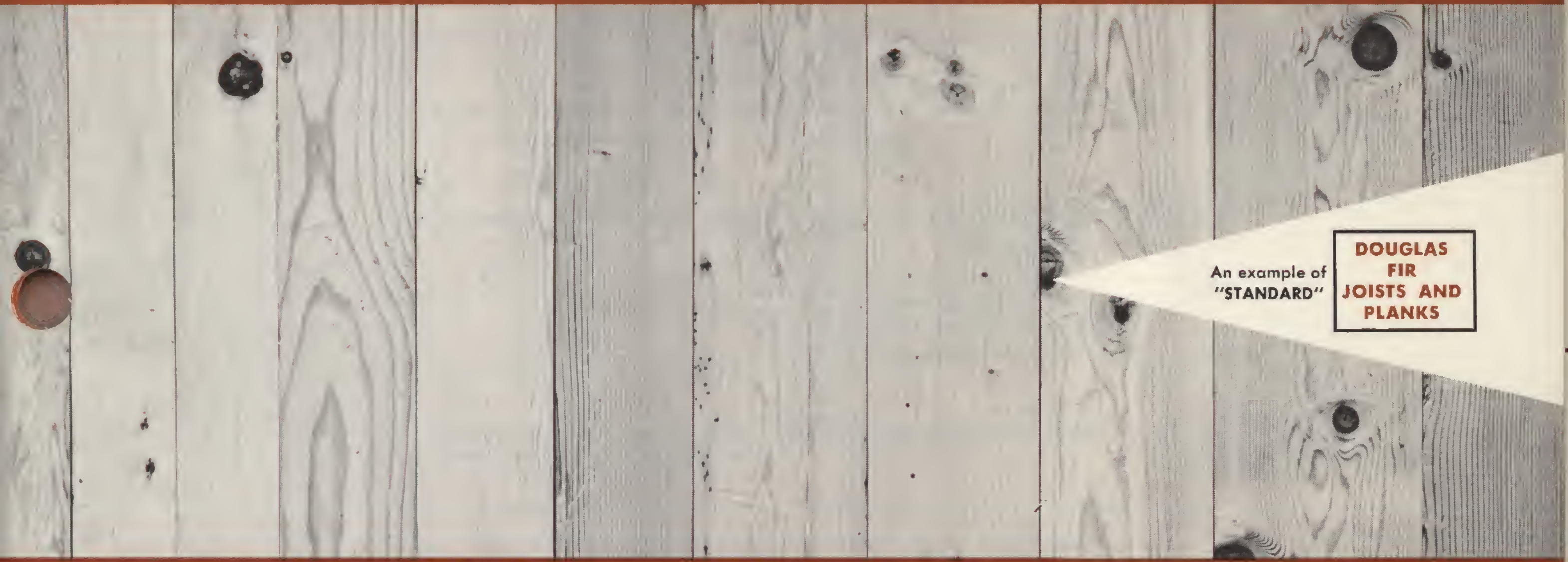
WEST COAST HEMLOCK JOISTS AND PLANKS

An example of "UTILITY"



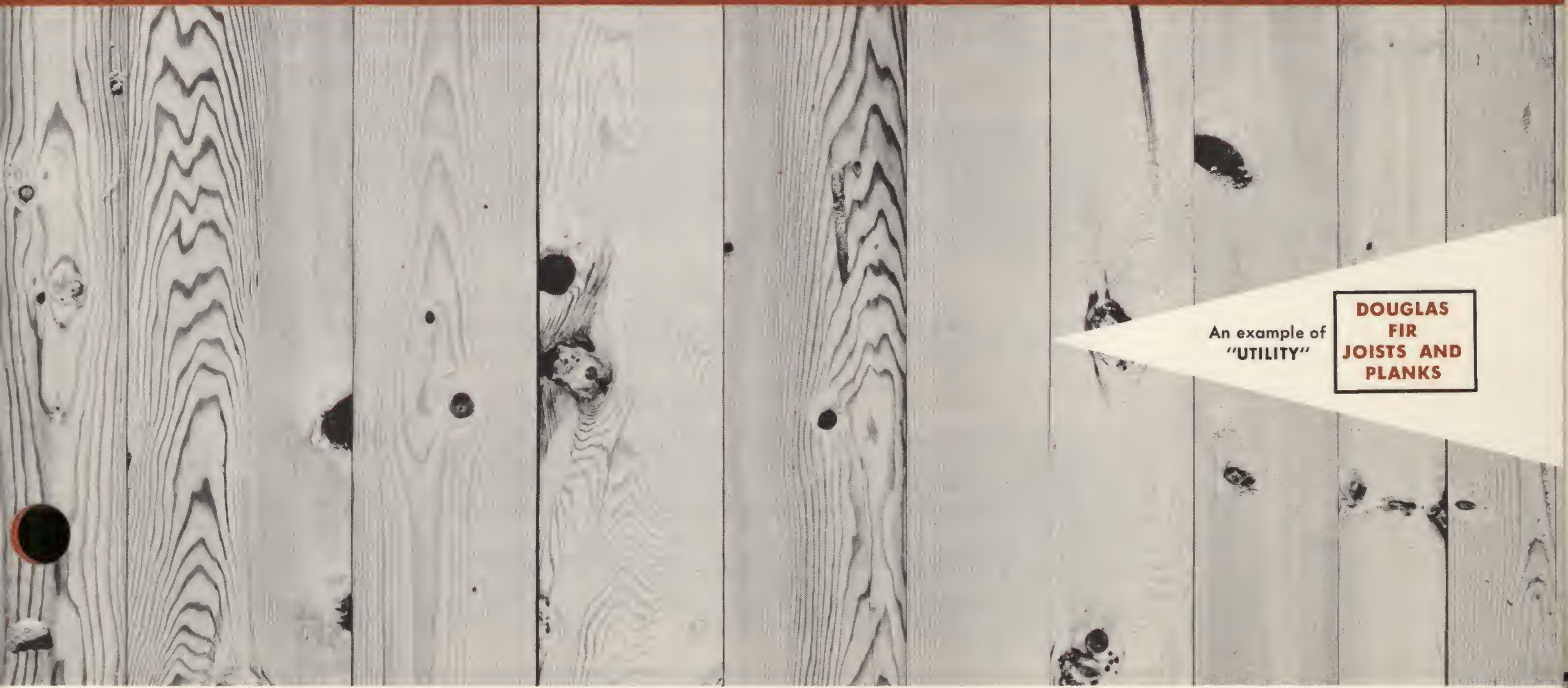
An example of "SELECT STRUCTURAL"

DOUGLAS FIR JOISTS AND PLANKS



An example of "STANDARD"

DOUGLAS FIR JOISTS AND PLANKS



An example of "UTILITY"

DOUGLAS FIR JOISTS AND PLANKS

Roof Decking

General Description

West Coast Roof Decking is usually run to a standard pattern and is surfaced two sides. It can be either single or double tongue and groove, and is most readily available and economical in random lengths of 6′ to 16′ or 6′ to 20′.

Both single and double tongue and groove Roof Decking are used for high class construction and for exposed applications.

Grades

There are two grades of Heavy Flooring, Wall and Roof Plank: "SELECT" and "STANDARD", available in either Douglas fir or West Coast Hemlock. This lumber may regularly be procured center matched, shiplapped, or grooved for splines. Though neither of these grades is stress-graded, they nevertheless have many uses where most induced stresses are low, such as 2″ sub-flooring in light framing; or heavy 3″ and 4″ plank flooring in factory or warehouse construction.

This material is also useful for roof and wall planking.

Paragraph 126-a	**Douglas fir**
Paragraph 126-b	
Paragraph 226-a	**West Coast Hemlock**
Paragraph 226-b	

Decking 3″ and 4″ thick is usually graded as "Dex" HEAVY WALL AND ROOF PLANK. It is 3″ to 4″ thick, 6″ wide and double tongue and groove. There are two grades of this decking and they are both STRESS GRADED: "Select Dex" and "Commercial Dex".

The allowable unit working stresses in pounds per square inch for "Dex" grades, for normal conditions of loading are:

		Extreme Fiber in Bending "f" When Loaded on Either Wide Face	Compression Perpendicular to Grain "c⊥"	Modulus of Elasticity "E"
Douglas Fir	"Select Dex"	1500	390	1,760,000
	"Commercial Dex"	1200		
West Coast Hemlock	"Select Dex"	1300	365	1,540,000
	"Commercial Dex"	1000		
Western Red Cedar	"Select Dex"	900	240	1,100,000
	"Commercial Dex	700		
White Fir	"Select Dex"	1100	365	1,210,000
	"Commercial Dex	850		

*See bottom of next page for patterns.

Insulation

West Coast species have very good insulating qualities. They have been assigned coefficients of heat transmission or k values which range from .74 to 1.0 BTU per inch of net thickness at 12% moisture content. Under normal climatic conditions, the insulation provided by nominal 2″ decking is usually adequate. In colder areas, additional insulation may be applied to either side of the decking.

Moisture Control

Where there is a combination of warmth and high humidity inside and low temperature outside a building, the moisture vapor inside tends to move outward through walls and ceilings. In extreme cases a vapor-barrier and 1″ rigid insulation should be placed above the deck to prevent condensation on top of the decking. This is purely a moisture control provision since wood is a very good insulating material and the decking itself, especially if 3″ or 4″ thick, is adequate where thermal insulation is the only consideration.

Fire Safety

Insurance rating authorities and fire protection engineers have long recognized the superior stability of heavy decking when exposed to fire.

Installation

Heavy Flooring, Wall and Roof Plank is customarily nailed to each supporting member by toe-nailing through the tongue. However, if the nominal width of the piece is more than three times the nominal thickness, additional face nails should be used. The nails used for any type of plank nailing should be long enough to penetrate two-thirds of the length of the shank into the holding piece.

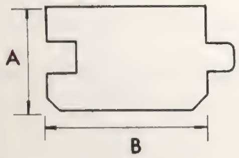
"Dex" Heavy Wall and Roof Plank is customarily pre-drilled between the double tongues. Pieces are fastened together by driving spikes through these holes at not more than 30″ centers and not more than 10″ from the ends. Each course is also toe-nailed and face-nailed to each supporting member. The special nails for the pre-drilled holes are usually supplied with each decking order.

ROOF DECKING
CONT'D

SIZES AND PATTERNS

V Joint

V JOINT

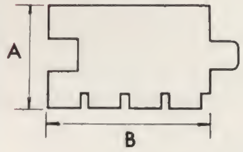


SIZES		CONVERSION TABLE
NOMINAL	ACTUAL	
	A B	
2 x 6	1⅝ x 5 face	2,400 FBM per 1,000 Square feet
2 x 8	1⅝ x 7 face	2,286 FBM per 1,000 Square feet
3 x 6	2⅝ x 5 face	3,600 FBM per 1,000 Square feet
3 x 8	2⅝ x 7 face	3,429 FBM per 1,000 Square feet

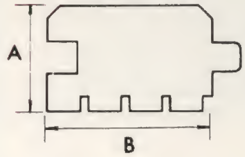
(Figures do not allow for waste in cutting)

Acoustical and Combination

ACOUSTICAL



COMBINATION

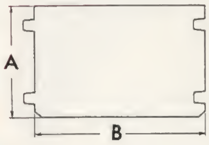


SIZES		CONVERSION TABLE
NOMINAL	ACTUAL	
	A B	
2 x 6	1⅝ x 5 face	2,400 FBM per 1,000 Square feet
2 x 8	1⅝ x 6⅞ face	2,327 FBM per 1,000 Square feet
3 x 6	2⅝ x 5 face	3,600 FBM per 1,000 Square feet
3 x 8	2⅝ x 6⅞ face	3,491 FBM per 1,000 Square feet

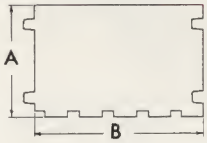
(Figures do not allow for waste in cutting)

Double Tongue and Groove

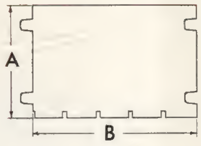
V-JOINT



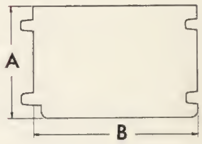
GROOVED



STRIATED



EASED JOINT



SIZES		CONVERSION TABLE
NOMINAL	ACTUAL	
	A B	
3 x 6	2⅝ x 5¼ face	3,429 FBM per 1,000 Square feet
4 x 6	3½ x 5¼ face	4,571 FBM per 1,000 Square feet

(Figures do not allow for waste in cutting)

SPAN INFORMATION

Decking Spans

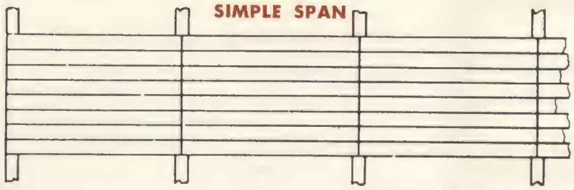
Maximum spans for "DEX" grades have been determined by allowable unit stress in bending and maximum deflection of 1/240th of the span length. The computations for spans determined by bending stress include dead load allowance of 15 lbs. per square foot for decking, 3 ply roofing and gravel topping. Spans limited by deflection are computed on the basis of live load only.

NOTE: The following span tables, for sake of convenience, have been rounded off to nearest 3".

ROOF DECKING
CONT'D

MAXIMUM SPANS

SIMPLE SPAN



Douglas Fir

NOM. THICK.	GRADE AND PARA.	LIVE LOAD (Lbs. per Sq. Ft.)			
		20	30	40	50
3"	Select Dex—127-b	15'3"	13'3"	12'0"	11'3"
3"	Comm. Dex—127-c	15'3"	13'3"	12'0"	11'3"
4"	Select Dex—127-b	20'3"	17'9"	16'0"	15'0"
4"	Comm. Dex—127-c	20'3"	17'9"	16'0"	15'0"

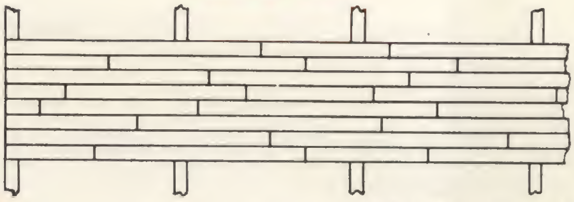
West Coast Hemlock

3"	Select Dex—127-b	14'6"	12'9"	11'6"	10'9"
3"	Comm. Dex—127-c	14'6"	12'9"	11'6"	10'9"
4"	Select Dex—127-b	19'6"	17'0"	15'6"	14'3"
4"	Comm. Dex—127-c	19'6"	17'0"	15'6"	14'3"

Western Red Cedar

3"	Select Dex—427-b	13'0"	11'3"	10'3"	9'6"
3"	Comm. Dex—427-c	13'0"	11'3"	10'3"	9'6"
4"	Select Dex—427-b	17'3"	15'3"	13'9"	12'9'
4"	Comm. Dex—427-c	17'3"	15'3"	13'9"	12'9'

RANDOM LENGTH



Douglas Fir

NOM. THICK.	GRADE AND PARA.	LIVE LOAD (Lbs. per Sq. Ft.)			
		20	30	40	50
3"	Select Dex—127-b	16'9"	14'6"	13'3"	12'3"
3"	Comm. Dex—127-c	16'9"	14'6"	13'3"	12'3"
4"	Select Dex—127-b	22'0"	19'3"	17'6"	16'3"
4"	Comm. Dex—127-c	22'0"	19'3"	17'6"	16'3"

West Coast Hemlock

3"	Select Dex—127-b	16'0"	14'0"	12'9"	11'9"
3"	Comm. Dex—127-c	16'0"	14'0"	12'9"	11'9"
4"	Select Dex—127-b	21'3"	18'6"	16'9"	15'6"
4"	Comm. Dex—127-c	21'3"	18'6"	16'9"	15'6"

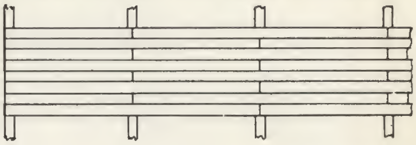
Western Red Cedar

3"	Select Dex—427-b	14'3"	12'3"	11'3"	10'6"
3"	Comm. Dex—427-c	13'6"	12'0"	10'9"	10'0"
4"	Select Dex—427-b	19'0"	16'3"	15'0"	14'0"
4"	Comm. Dex—427-c	18'0"	16'0"	14'9"	13'3"

ROOF DECKING
CONT'D

MAXIMUM SPANS

COMB. SIMPLE + 2-SPAN CONTINUOUS



Douglas Fir

		LIVE LOAD (Lbs. per Sq. Ft.)			
NOM. THICK.	GRADE AND PARA.	20	30	40	50
3"	Select Dex—127-b	17'3"	15'0"	13'6"	12'6"
3"	Comm. Dex—127-c	17'3"	15'0"	13'6"	12'6"
4"	Select Dex—127-b	22'9"	20'0"	18'3"	16'9"
4"	Comm. Dex—127-c	22'9"	20'0"	18'3"	16'9"

West Coast Hemlock

3"	Select Dex—127-b	16'6"	14'3"	13'0"	12'0"
3"	Comm. Dex—127-c	16'3"	14'3"	13'0"	12'0"
4"	Select Dex—127-b	22'0"	19'3"	17'3"	16'0"
4"	Comm. Dex—127-c	21'6"	19'0"	17'3"	15'9"

Western Red Cedar

3"	Select Dex—427-b	14'9"	12'9"	11'9"	10'9"
3"	Comm. Dex—427-c	13'6"	12'0"	10'9"	10'0"
4"	Select Dex—427-b	19-6"	17'0"	15'6"	14'3"
4"	Comm. Dex—427-c	18'0"	16'0"	14'3"	13'3"

WHERE TO BUY

WHERE TO BUY

WEST COAST LUMBER
DOUGLAS FIR
WEST COAST HEMLOCK
SITKA SPRUCE
WESTERN RED CEDAR
WHITE FIR

WEST COAST LUMBERMEN'S ASSOCIATION

The Association's annual WHERE TO BUY directory is available free upon request. The booklet lists approximately 250 West Coast mills and their locations, plus detailed information on the species produced, mill facilities, capacity and all items manufactured, both regular and special.

ADDITIONAL INFORMATION

(Obtainable from West Coast Lumbermen's Association unless otherwise noted)

DOUGLAS FIR USE BOOK

8½" x 11" bound in a durable cloth cover, stitched so that it will stay flat when opened. Contains structural data, design tables and text which gives basic information from which design procedures and tabular data are developed — $5.00 per copy.

GRADING AND DRESSING RULES 15

357 pages, 3½" x 6½". Gives the official rules for grading and dressing Douglas fir, West Coast Hemlock, Western red cedar and Sitka spruce. Single copies free.

NATIONAL DESIGN SPECIFICATIONS FOR STRESS-GRADE LUMBER AND ITS FASTENINGS

66 pages, 8½" x 11". Contains information on allowable unit stresses for stress grade lumber and glued laminated structural lumber under various conditions, design formulas and provisions for various uses. Also contains data on bolted joints, lag screw joints, timber connector joints and nailed joints. 50c per copy from the National Lumber Manufacturers Association, 1319 18th Street, N. W., Washington 6, D. C.

STANDARD SPECIFICATIONS FOR STRUCTURAL GLUED LAMINATED DOUGLAS FIR LUMBER

STANDARD SPECIFICATIONS FOR STRUCTURAL GLUED LAMINATED WEST COAST HEMLOCK LUMBER

DESIGN — 12 pages, 8½" x 11". Contains information on allowable stresses, induced stresses from curvature, standard sizes, properties of sections and more. Free.

FABRICATION — 12 pages, 8½" x 11". Contains information on grades of lumber used, laminating requirements, end joints, adhesives and other pertinent data. Free.

TEN ESSENTIAL STANDARDS FOR FABRICATED TIMBER STRUCTURES

4 pages, 8½" x 11". Outlines fundamental standards for obtaining maximum advantages and economies possible in fabricated timber structures. Free.

TYPICAL LUMBER DESIGNS

8½" x 11". A folder of designs for trussed rafters and roof trusses, bridges and trestles. Free from the Timber Engineering Company, 1319 18th Street, N. W., Washington 6, D. C.

PLANK-AND-BEAM FLOOR AND ROOF SYSTE[illegible] FOR RESIDENTIAL BUILDINGS

28 pages, 8½" x 11". Contains diagrams, line drawings and photographs of the plank-and-beam system, with tables of plank spans and arrangement of beam spans. Free.

DOUGLAS FIR LUMBER GRADES AND USES

44 pages, 8½" x 11". Contains photographs and descriptions of grades, uses and standard sizes of Douglas fir lumber. Free.

WEST COAST HEMLOCK LUMBER GRADES AND USES

44 pages, 8½" x 11". Contains photographs and descriptions of grades, uses and standard sizes of West Coast Hemlock lumber. Free.

WESTERN RED CEDAR LUMBER GRADES AND USES

36 pages, 8½" x 11". Contains photographs and descriptions of grades, uses and standard sizes of Western red cedar lumber. Free.

GRADE GUIDE WALL CHART

35" x 22". Packed with useful details — grade descriptions, grade stamp facsimiles, standard sizes. Free.

DOUGLAS FIR — SPECIFICATIONS AND DESIGN RECOMMENDATIONS

4 pages, 8½" x 11". Covers such uses as bridges, docks, warehouses and other structures for greatest economy. Free.

A REPORT ON DESIGN OF TIMBER-CONCRETE COMPOSITE DECKS

6 pages, 6" x 9". A study of composite bridge deck construction. Free.

SIMPLE HYPERBOLIC PARABOLOID SHELLS OF WEST COAST LUMBER

8 pages, 8½" x 11". Contains construction photographs of famous Oregon Forest Products Pavilion, plus a technical analysis of a simple hyperbolic-paraboloid shell, with drawings and formulas. Free.

CONDENSED AWPA MANUAL

Specifications for the Pressure Treatment of Western Woods, 50 pages, 3¾" x 7¼". Free, from Western Wood Preserving Operators Association, 1410 S. W. Morrison Street, Portland 5, Oregon.

GRADE STAMPS FOR WEST COAST LUMBER

12 pages, 4" x 9". Contains a complete list of grade stamps for West Coast Lumber. Free.

For additional copies of this folder write:

WEST COAST LUMBERMEN'S ASSOCIATION

1410 S.W. MORRISON STREET
PORTLAND 5, OREGON

Digitized by: The Association for Preservation Technology
From the collection of: Floyd Mansberger, Fever River Research
www.IllinoisArchaeology.com

Litho
U.S.A.